

Item FY96
04DS1
16 March 1995

PURCHASE DESCRIPTION

OPTICAL LEAK DETECTOR

OLDAA-A

- 1.0 **GENERAL** This procurement requires an optical leak detector that can detect light loss from a broken fiber or a micro bend through the outer jacket of a fiber optic cable.
- 2.0 **CLASSIFICATION** Type II, Class 5, Style E, and Color R in accordance with MIL-T-28800 for shipboard applications.
- 3.0 **OPERATIONAL REQUIREMENTS** The equipment shall be capable of providing a visual and audible alarm when a leak is detected in the subject fiber optic cable as specified below. The optical leak detector shall provide both the light probe and a fiber optical light source.
- 3.1 **Light Probe** The light probe shall be a self contained unit capable of detecting light leakage from fiber optic cable. The light probe shall include an optical filter and circuitry to detect only modulated light in order to provide ambient light rejection. The probe shall provide both visual and audible indication of a detected light leak. The light probe shall also provide a battery status indication and a "power on" indicator.
 - 3.1.1 Detection Wavelength: 1300 nm \pm 30 nm
 - 3.1.2 Optical Sensitivity: At least -60 dBm
 - 3.1.3 Beam Width: At least 20 degrees
 - 3.1.4 Detection Frequency: 500 Hz \pm 20 Hz
- 3.2 **Light Source** The light source shall be a self contained unit capable of providing a high power light source for injection into fiber optic cables. The light source shall be modulated such that the light from the source can be detected by the light probe in the presence of ambient light.
 - 3.2.1 Operating Wavelength: 1300 nm \pm 30 nm
 - 3.2.2 Spectral Width: 5 nm maximum
 - 3.2.3 Output Power: At least -3 dBm and a minimum output power level of -13 dBm or less
 - 3.2.4 Output Power Variation: At least -10 dB from the maximum power output
 - 3.2.5 Modulation Frequency: Optical output modulated at 500 Hz \pm 20 Hz

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3.2.6 Output Connector: ST type connector for connection to fiber optic cable.

4.0 **GENERAL REQUIREMENTS**

4.1 **Power** DC battery for portable operation of the light source
DC battery operation (only) of the light probe

4.1.1 DC Operating Time

4.1.1.1 (light source): At least 8 hours continuous operation
Recharge time shall not exceed six hours

4.1.1.2 (light probe): At least 100 hours continuous operation

4.1.2 AC Operation (light source): External adapter provides DC to input jack
AC Voltage: 115/230 $\pm 10\%$

4.2 **Lithium batteries** Per MIL-T-28800, lithium batteries are prohibited without prior authorization. Requests for approving the use of lithium batteries, including those encapsulated in integrated circuits, shall be submitted to the procuring activity at the time of submission of proposals. Approval shall apply only to the specific model proposed.

4.3 **Weight** 241 gm (8.5 oz) [light source]; 45 gm (1.6 oz) [light probe]